Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROLF C. RYHAM

Appeal No. 1998-3168
Application No. 08/420,730

ON BRIEF

Before KIMLIN, WALTZ and DELMENDO, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 5-15, 17-20, 23 and 27. Claims 2-4, 16, 21, 22 and 26, the other claims remaining in the present application, have been objected to by the examiner. Claim 1 is illustrative:

1. A method of producing steam having less sulfur-containing noncondensible gases than steam produced by flashing black liquor, including sulphur [sic] compounds, directly into steam, comprising the steps of:

(a) passing hot black liquor, including sulphur [sic] compounds, at a temperature of about 120-165EC from a digester through a heat exchanger; and

(b) passing an evaporable liquid to be evaporated through the heat exchanger into heat exchange contact with the hot black liquor so that the evaporable liquid is heated so that it is ultimately evaporated to produce steam having less sulfur-containing noncondensible gases than steam produced by flashing black liquor, including sulphur [sic] compounds, directly into steam.

The examiner relies upon the following references as evidence of obviousness:

Dean	2,029,350	Feb. 4, 1936
Schlichtig	3,641,784	Feb. 15, 1972
Elmore et al. (Elmore)	4,897,157	Jan. 30, 1990

Appellant's claimed invention is directed to a method and system for producing steam that has less sulfur-containing noncondensible gases than steam produced by the flashing of black liquor. The method entails passing hot black liquor through a heat exchanger for heating an evaporable liquid, i.e., water, that is ultimately evaporated to produce steam. The produced steam, which has little, if any, sulfur-containing noncondensible gases, can be used to treat comminuted cellulosic fibers prior to the introduction of the

fibers into a digester. In essence, rather than flashing the black liquor to produce sulfur-containing steam, appellant's method uses hot black liquor to heat a purer form of water, i.e., water not containing sulfur, to produce a steam.

Appealed claims 1, 11-14, 15, 20 and 23 stand rejected under 35 U.S.C. § 103 as being obvious over Elmore in view of Dean. Claims 5-10, 17-19 and 27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Elmore in view of Dean and Schlichtig.

We have thoroughly reviewed each of appellant's arguments for patentability, as well as the declaration evidence relied upon in support thereof. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for the reasons set forth in the Answer, which we incorporate herein, and we add the following for emphasis only.

There is no dispute that Elmore produces multiple steam streams by flashing black liquor for the purpose of recovering heat energy in the system. There is also no dispute that Dean

teaches a process for recovering heat energy by utilizing the vapor stream from a digester to produce pure steam for uses "such as the operation of evaporators, paper mill dryers and also during the preheating period for the operation of digesters" (page 1, column 1, lines 37-39). Accordingly, based on the collective teachings of Elmore and Dean, we are convinced that it would have been obvious for one of ordinary skill in the art to modify the system of Elmore by using the hot black liquor to form

steam from non-sulfur containing water through the use of a heat exchanger. We cannot agree more with the examiner's rationale

that:

> [I]f one is concerned with the recovery of heat energy from the digester and producing pure and clean steam for use in the paper mill dryer, it would have been obvious to modify the heat energy recovery and steam generation of Elmore by using indirect heat exchanger and fresh clean water as a source of evaporable liquid inlet to produce clean steam as taught by Dean [sentence bridging pages 8 and 9 of Answer].

Since both Elmore and Dean are directed to paper milling processes and are concerned with the efficient recovery of heat energy, we do not agree with appellant that Dean is non-analogous art with respect to the disclosure of Elmore and the claimed invention.

Appellant asks at page 5 of the principal brief "what would motivate one of ordinary skill in the art to act upon the stream 60 which does contain sulfur compounds in Elmore et al[.] so that it did not contain sulfur compounds?" We find the motivation clearly spelled out in Dean, i.e., the motivation to produce pure steam for the unit operations which require it, namely, evaporators, paper mill dryers, and during

the preheating period for the operation of digesters. This motivation is expressly stated by Dean (page 1, column 1, lines 36 et seq.).

Appellant contends at page 6 of the principal brief that Dean is non-analogous prior art because "[n]ot only does the disclosure of Dean apply solely to batch digesters, but the disclosure of Dean applies to old obsolete batch digesters." However, appellant's own specification states that the present invention is applicable to continuous or batch digesters (page 2, lines 19-21).

Appellant also maintains that "[b]oth the disclosure of Dean and other conventional batch digester recovery systems are limited to the recovery of heat from vapor and none employ the hot spent cooking liquids as does the present invention" (page 7 of principal brief, last paragraph). However, it is our view that appellant ascribes too narrow an interpretation of Dean by one of ordinary skill in the art. In our view, one of ordinary skill in the art would have understood Dean as teaching the production of a pure form of steam from sufficiently hot streams of a paper milling process, be they liquid or vapor.

Appellant relies upon the Declaration of Carl L. Elmore, one of the inventors of the applied Elmore reference, as evidence of nonobviousness. Mr. Elmore states at page 2 of the Declaration that "I did not look upon the '157 patent as including a method or apparatus for producing steam having less NCG than steam produced by conventional black liquor flashing."[1] In response to this Declaration, the examiner withdrew a rejection under 35 U.S.C. § 102 over Elmore. However, while the declarant states in the sentence bridging pages 4 and 5 of the Declaration that "in 1995 it would have been very desirable to be able to have a method of producing steam from hot black liquor that contained relatively little sulfur NCG, particularly for use in steaming incoming wood chips," the Declaration fails to present any evidence or even opinion that the claimed method of producing a purer form of steam would have been nonobvious to one of ordinary skill in the art, particularly in light of the Dean disclosure. The declarant offers no opinion regarding how one of ordinary skill in the art, at the time of filing the present application, would have interpreted the disclosure of Dean.

[1] NCG is an acronym for non-condensible gas.

Consequently, we find that the Declaration is of little probative value in rebutting the evidence of obviousness presented by the examiner.

As for the examiner's § 103 rejection of claims 5-10, 17-19 and 27 over the additional teaching of Schlichtig, we agree with the examiner that it would have been prima facie obvious for one of ordinary skill in the art to employ the claimed inductor to improve the heat transfer efficiency in the heat exchanger.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ROMULO H. DELMENDO Administrative Patent Judge	)	

ECK:clm

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